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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/916,990	07/27/2001	Yukihisa Takeuchi	789_038 DIV	1562

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EXAMINER
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PATEL, ISHWARBHAI B

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 03/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

## Application No.

09/916,990

## Applicant(s)

TAKEUCHI ET AL.

## Examiner

Ishwar (I. B.) Patel

## Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 11-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 July 2001 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/435,191.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to because the figures are improperly cross hatched. All of the parts shown in section, and only those parts, must be crosshatched. The cross hatching patterns should be selected from those shown on page 600-114/115 of the MPEP based on the material of the part. See also 37 CFR 1.84(h)(3) and MPEP 608.02.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Specification***

2. The disclosure is objected to because of the following informalities: "FIG. 7", on line 10, page 14, should be -- FIG. 7A --.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 12-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 12, the structure of the claim is confusing and is not clear what the applicant is claiming.

The phrase "if it is assumed that a plurality of patterns are formed in an aligned manner" is not a positive recitation. This is a structural claim and the claimed structure as described should be clear, without any kind of assumption.

Regarding claim 12, the applicant is claiming how the pattern is formed using a mask. However, this claim is dependent upon the base claim 11, which discloses the patterns on the circuit board. It is not clear what additional structure is claimed in claim 12.

Regarding claims 13-15, the applicant is claiming the detail of the mask used for the wiring pattern. However, the mask is not a part of the final structure of the circuit board of the base claim 10-11, and is not clear what additional structure of the circuit board is claimed.

No prior art applied to claims 13-15.

Regarding claim 16, the applicant is claiming the pattern formed by one time screen-printing. However, it is not clear what additional structure other than that in claim 11 is claimed.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 11, 12 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haq et al., US patent No. 6,041,496, hereafter Haq, in view of Nakata et al., US Patent No. 6,047,893, here after, Nakata

Regarding claim 10, Haq discloses a circuit board comprising a pattern formed by screen printing, said pattern including at least one of a passive device such as a capacitor (substrate 50 with circuit patterns 70-72 including resistor, capacitor or inductor, see figure 6, column 19, line 32-42.

but fail to disclose a gap between said pattern is not more than 40  $\mu\text{m}$ . However, wiring patterns with a gap smaller than 40  $\mu\text{m}$ , as disclosed by Nakata is known in the art and can be provided depending upon the specific requirement, see Nakata – column 17, line 55-65.

Furthermore, the limitation “a pattern formed by a screen printing” is a process limitation in product claim. Such a process limitation defines the claimed invention over the prior art to the degree that it defines the product itself. A process limitation cannot serve to patentably distinguish the product over the prior art, in the case that the product is same as, or obvious over, the prior art.

See Product – by – Process in MPEP § 2113 and 2173.05(P) and *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the circuit board of Haq with a gap between said pattern is not more than 40  $\mu\text{m}$ , as taught by Nakata, in order to have more number of trace lines for the desired functionality.

Regarding claim 12, the thickness of the trace will depend upon characteristics of the paste, such the fluidity and number of times it is printed and can be adjusted to have desired thickness for controlled electrical losses.

Regarding claim 16, though, the modified structure of Haq does not explicitly disclose the number of times the printing carried out, it will depend upon the characteristics of the screening paste and the thickness required and can be adjusted to have the desired thickness. Further, this is the structural claim and the process limitation in a product claim cannot serve to patentably define the product over the prior art of record. Such a process limitation defines the claimed invention over the prior art to the degree that it defines the product itself. A process limitation cannot serve to patentably distinguish the product over the prior art, in the case that the product is same as, or obvious over, the prior art. See Product – by – Process in MPEP § 2113 and 2173.05(P) and *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985).

No prior art applied to claims 13-15 as explained in 112, 2<sup>nd</sup> Paragraph rejection above.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Mohri et al., discloses the circuit patterns with a line width of about 10-30  $\mu\text{m}$  with a gap of 60  $\mu\text{m}$ .

Hayama et al., discloses the circuit pattern with line width less than 50  $\mu\text{m}$  and pitch below 100  $\mu\text{m}$ .

Yamasaki discloses a laminated ceramic component.

Tsunashima discloses printed components such as resistors, capacitors and conductors.

Millard et al., discloses screen-printed electronic capacitor.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ishwar (I. B.) Patel whose telephone number is (703) 305 2617. The examiner can normally be reached on M-F (8:30 - 5).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L Talbott can be reached on (703) 305 9883. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305 3431 for regular communications and (703) 305 7724 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956.

ibp  
March 21, 2003



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